

REMARKS

In accordance with the foregoing, the specification, drawings and claims 1, 5, 12 and 14-16 have been amended. Claims 13 and 25 have been cancelled. Claims 7-9 and 17-24 have been withdrawn. Claims 1, 3-6, 10-12 and 14-16 are pending and under consideration.

OBJECTION TO THE SPECIFICATION

The specification was objected to due to an informality. Appropriate correction has been made to paragraph [0041] of the specification. Withdrawal of the foregoing objection is requested.

The specification was further amended at paragraph [0020] to refer to the arrows indicating the reciprocating direction.

CLAIM REJECTIONS – 35 USC 112

Claims 1, 3-6 and 10-16 were rejected under 35 USC 112, second paragraph, as being indefinite. Appropriate correction has been made to claims 1 and 12. Withdrawal of the foregoing rejection is requested. Further, the drawings and specification have been amended to show the reciprocating direction.

CLAIM REJECTIONS – 35 USC 102/103

Claims 1, 3, 10-12 and 25 were rejected under 35 USC 102(b) as being anticipated by Ogawa et al. (US 5,950,495 or US RE37,731) (hereinafter "Ogawa").

Claims 4-6 were rejected under 35 USC 103(a) as being unpatentable over Ogawa in view of Mitsuyoshi (US 2001/0004852) (hereinafter "Mitsuyoshi").

Claims 13-15 were rejected under 35 USC 103(a) as being unpatentable over Ogawa in view of Mitsuyoshi and in further view of Sato et al. (US 5,857,826) (hereinafter "Sato").

Claim 16 was rejected under 35 USC 103(a) as being unpatentable over Ogawa in view of Mitsuyoshi and Sato and in further view of Solomon et al. (US 5,775,169) (hereinafter "Solomon").

Ogawa discusses a two-armed transfer robot. In Ogawa, first and second handling members 22, 42 are simultaneously rotated around a first axis O₁ in the following manner. With both handling members held at the position of horizontal rotation, first to third driving devices 8-10 are synchronously actuated for rotating first to third shafts 2-4 in the same direction and at the same angular speed. As a result, the elements attached to the first to the third shafts 2-4 are

moved in the same direction. Thus, the above-mentioned elements as a whole are rotated clockwise or counterclockwise about the first axis O₁, with the handling members 22, 42 held in the position of horizontal rotation. Ogawa, 9:18-9:29 and Figure 4.

Mitsuyoshi discusses a transfer arm. In Mitsuyoshi, a transfer arm 1 is supported on the base plate 2 via two arthroses 14, 15 as ends of the short link element 13 at one end of the first parallel link 10. The base plate 2 is in a disc shape when seen from the top and is fixed to the top of a cylindrical casing 3 by bolts as shown in FIG. 3. The drive shaft R1 driven by a motor (not shown) is supported by a ball bearing 4 and is housed in the cylindrical casing 3. One end of the link element 11 of the first parallel link 10 is bolted to the upper end of the drive shaft R1 so as to compose the arthrosis 14. The driven shaft R2 is supported on the base plate 2 by a ball bearing 5. One end of the link element 12 of the first parallel link 10 is bolted to the upper end of the driven shaft R2 so as to compose the other arthrosis 15 of the short link element 13. Mitsuyoshi, paragraph [0057] and Figure 1A.

Sato discusses a work transporting robot and semiconductor device manufacturing apparatus. In Sato, each rotation axis 1a, 1b and 1c of the rotation axis unit 1 is connected to each speed reducer 2b, 3b and 4b by each belt 2c, 3c and 4c, respectively. Each speed reducer 2b, 3b and 4b is provided to each motor 2a, 3a and 4a for rotationally moving each arm, respectively. Motors 2a, 3a and 4a for rotationally moving each arm are controlled their rotating directions and rotating speed by controlling sections, respectively. Sato, 8:19-8:26 and Figure 2.

In one operation of Sato, the first and second arms 2 and 3 are rotationally moved in directions for approaching both arms to one another so that the first work supporting table 5 is moved into the process chamber 11b for manufacturing semiconductor device. Then, both work supporting tables 5 and 6 are moved upward with the rotation axis unit 1 by operating the motor 8a for straight movement so that a semiconductor wafer which has applied processing is supported on the first work supporting table 5. Sato, 9:50-9:58 and Figure 5.

Claims 1-6 and 10-16

Amended claim 1 recites: "...a driving part to drive the first and second driving axles, the driving part including, a first motor, wherein the first motor drives the first and second driving axles to rotate; a second motor, wherein the second motor drives a supporting shaft of the supporting part which is interlocked with the first and second driving axles to rotate; and a third motor, wherein the third motor drives the supporting shaft and the second motor to move up and down..." Support for this amendment may be found in at least original claim 13. In contrast to

claim 1, neither Ogawa, Mitsuyoshi nor Sato discuss the technical feature of claim 1 where three motors are provided in the structure recited therein, particularly a second motor driving a supporting shaft of the supporting part and the third motor driving the support shaft and second motor up and down. Ogawa only discusses three driving devices 8-10 that are synchronously actuated for rotating three shafts 2-4 in the same direction and at the same angular speed and does not discuss a one of the motors 2-4 driving a supporting shaft. Mitsuyoshi only discusses a single motor that drives two drive shafts R1 and R2. Sato discusses a plurality of motors 2a, 3a and 4a for rotationally moving each arm, and speed reducers 2b, 3b and 4b are housed within a casing 8 in a moving upward and downward manner by guiding rails 9. However, Sato does not disclose that any of the motors 2a, 3a, 4a drives a supporting shaft of the supporting part as is recited in claim 1. As such, it is respectfully submitted that claim 1 patentably distinguishes over the cited art.

Claim 13 has been cancelled. Claims 3-6, 10-12 and 14-16 depend on claim 1 and are therefore believed to be allowable for at least the foregoing reasons. Further, claims 3-6, 10-12 and 14-16 recite features that patentably distinguish over Ogawa, Mitsuyoshi, Sato and Solomon, taken alone or in combination. For example, claim 3 recites that the pivots connecting the transporting links with the transporting table are aligned in the reciprocating direction of the transporting table.

Withdrawal of the foregoing rejection is requested.

Claim 25

Claim 25 has been cancelled.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS:

The attached drawings include changes to Figures 1, 2, 3A, 3B, 3C, 6 and 7. The sheets containing Figures 1, 2, 3A, 3B, 3C, 6 and 7 replace the original sheets including Figures 1, 2, 3A, 3B, 3C, 6 and 7. In Figures 1, 2, 3A, 3B, 3C, 6 and 7 an arrow designating the reciprocating direction has been added.